

Navy Advancement Center

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Advancement Handbook for Gas Turbine Systems Technician (Electrical)

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PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Gas Turbine Systems Technician (Electrical) rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the “*Exam Expectations*” section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

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Part 1

Advancement Handbook for GSE3

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate gas turbine engines (GTE) locally
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the GTE start sequence • Identify starting and stopping (EOSS) procedures • Recognize the principles of GTE theory of operation • Identify engine parameters • Recognize the engineering control and surveillance system (ECSS) on DD-963, DD-993, CG-47 class ships • Recognize the engineering plant control system (EPCS) on FFG-7 class ships • Recognize the machinery control system (MCS) on DDG-51 class ships • Recognize the alarm and monitoring system on landing craft, air cushion (LCAC) crafts • Recognize casualties during starting or stopping
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Navy Occupational Safety and Health (NAVOSH) Program Manual, OPNAVINST 5100.19 • EOSS procedures • LM2500 Propulsion GTE Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, FFG-7, DDG-51, and AOE-6 class ships; Volumes 1, 2, and 4

	<ul style="list-style-type: none"> • Safe Engineering and Operations (SEAOPS) Manual for LCAC (S9LCA-AA-SSM-010) • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC Craft Information Book (CIB), NAVSEA S9LCA-AA-SIB-010 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010) • NSTM, Chapter 234 • Ships' Maintenance Material Management (3-M) Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE theory, preparation of the engines for starting, the starting procedures, cautions and parameters to be observed during the start/stop procedures, and casualty control actions required during the procedures.</p>

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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, and repair GTE components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Major components of GTE construction • Gas generator components • Power turbine components • Power turbine brake components • Accessory gear box components • Speed pick-ups/vibration sensors • Purpose of free standing electronics enclosure (FSEE)/integrated electronics console (IEC) checks • Procedures for FSEE/IEC checks
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NAVOSH Program Manual, OPNAVINST 5100.19 • EOSS procedures • LM2500 Propulsion GTE Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, FFG-7, DDG-51, and AOE-6 class ships; Volume 4 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • LCAC AMS, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010)

	<ul style="list-style-type: none"> • NSTM, Chapter 234 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE theory, preparation of the engines for starting, the starting procedures, cautions and parameters to be observed during the start/stop procedures, casualty control actions required during the procedures, FSEE/IEC check procedures, and circuit card descriptions.</p>

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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate gas turbine generator sets (GTGS)/ship's service diesel generator (SSDG) sets locally
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall GTE starting and stopping procedures • Recall the fundamentals of making electricity (theory) • Identify the local starting, stopping and shifting of control (EOSS) procedures • Recall the start sequence • Identify parameters • Recognize casualties during starting or stopping and engineering operational casualty control (EOCC) procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Navy Electricity and Electronics Training Series (NEETS), Modules 1, 2, 3, and 5 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • LCAC APU, NAVSEA S9311-A3-A3-MMA-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject area's you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the GTGS/SSDG local starting and stopping procedures, electrical theory, the identification of operating characteristics and parameters, start sequence, types of stops, and casualty symptom recognition during starting, operating, or stopping, and identification of EOCC procedures.</p>
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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, repair and replace GTGS/SSDG sets
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Purpose of EOSS/EOCC procedures, hot and cold safety check procedures • Component cleaning and inspection procedures • Components of the GTGS/SSDG • Testing and troubleshooting concepts and procedures • Component repair and replacement procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, 19 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • LCAC APU, NAVSEA S9311-A3-A3-MMA-010 • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you	You can expect questions about GTGS/SSDG component operation; electrical theory; inspection criteria; testing, troubleshooting,

answer exam questions correctly:	repair and replacement procedures, and safe engineering practices.
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General GSE <i>Skill Area</i>	Gas Turbine/Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, and test GT modules
<i>Knowledge</i> you should have to perform this skill:	<p>Identify:</p> <ul style="list-style-type: none"> • Four major units of the gas turbine module to include the base/enclosure assembly, gas turbine assembly, lube oil storage and conditioning assembly, and the free standing electronic enclosure (FSEE)/integrated electronic control assembly (IEC) • Major units of the ships service diesel generator set to include the diesel engine, the ac generator, the common base with associated equipment, control and monitoring devices • Inspection criteria for GT modules • Inspection criteria for SSDG enclosures • Testing procedures for Halon systems • Temperature/alarm calibration procedures • Transducer calibration procedures • FSEE/IEC check calibration procedures • Lock wire procedure • GTE support system interfaces • SSDG support system interfaces
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS module inspection procedure • LM2500 Propulsion GTE Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, 8 (S9234-AD-MMO-010 - 090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-

	<p>963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2</p> <ul style="list-style-type: none"> • NSTM, Chapter 234 • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010 - 050/MOD 104 GTGS, Chapters 2 and 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010 - 040/MOD 139 GTGS, Chapters 2 and 8) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010 - 060/MOD AG9130 GTGS, Chapters 2 and 6) • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE module/ GTGS/SSDG enclosure testing, inspection, and repairs, Halon system testing, support system interfaces and calibration procedures for module/enclosure mounted sensors and transducers, FSEE checks for the DD-963, DD-993, FFG-7, and CG-47 class ships and IEC checks for the DDG-51 and AOE 6 class ships.</p>

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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, repair and replace GT fuel system and combustion section components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify combustion chamber and fuel system components • Recall operation of combustion chamber and fuel system components • Recall test, repair, and replacement principles of combustion chamber and fuel system components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NAVOSH Program Manual, OPNAVINST 5100.19 • LM2500 Propulsion GTE Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, FFG-7, DDG-51, and AOE-6 class ships; Volume 4 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) • (S9234-ES-MMA-010) • NSTM, Chapter 234 • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS

	<p>(S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapters 3-6 and 8)</p> <ul style="list-style-type: none"> • Operation and Maintenance Manual for Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapters 2, 5, 6, and 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapters 2, 5, 6, and 8) • LCAC APU System/Installation (S9311-A3-MMA-010, Chapters 2-6) • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the operation, inspection, repair and replacement of GT combustion chamber, and fuel system components.</p>

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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Water wash gas turbines, test and repair water wash systems
<i>Knowledge</i> you should have to perform this skill:	<p>Recall:</p> <ul style="list-style-type: none"> • Water washing engines requirements • Water washing engines procedures • Testing and repair procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion GTE Module Description, Operation, and Installation; Chapter 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010) • NSTM, Chapter 234 • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapter 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapter 8) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapters 2 and 4) • Operation and Maintenance Manual for LCAC APU System/Installation (S9311-A3-

	MMA-010) <ul style="list-style-type: none"> • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the required conditions for water washing a GTE/GTG, what the procedures are, and how to test the water wash system.

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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, and repair inlet and exhaust systems, moisture separators and blow-in-doors
<i>Knowledge</i> you should have to perform this skill:	<p>Identify:</p> <ul style="list-style-type: none"> • Inlet and exhaust system components • Cleaning methods and signs of foreign object hazards • Purpose of blow-in-doors and moisture separators • Components of blow-in-door and moisture separators • Testing procedures for blow-in-doors and moisture separators
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NAVOSH Program Manual, OPNAVINST 5100.19 • EOSS procedures • LM2500 Propulsion GTE Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, FFG-7, DDG-51, and AOE-6 class ships; Volume 4 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010) • NSTM, Chapter 234 • Description, Operation, and Installation

	<p>Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapters 2 and 6)</p> <ul style="list-style-type: none"> • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapters 2 and 3) • Operation and Maintenance Manual for LCAC APU System/Installation (S9311-A3-MMA-010) • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect question about GTE inlet and exhaust system cleaning, inspection, foreign object hazard detection and correction; blow-in door and moisture separator testing; compressor inlet temperature (CIT) and ice detector sensor circuit inspection, troubleshooting, and repair procedures.</p>

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General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, troubleshoot, repair and replace GT lube oil system components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify alignment (EOSS) procedures • Recall the principles of GTE lube oil system theory of operation • Identify engine lube oil parameters
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NAVOSH Program Manual, OPNAVINST 5100.19 • EOSS procedures • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, FFG-7, DDG-51, and AOE-6 class ships; Volumes 1, 2, and 4 • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010) • NSTM, Chapter 234 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564

<p><i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE theory, preparation of the engines for starting, the starting procedures, cautions, and parameters to be observed during the start/stop procedures, and casualty control actions required during the procedures.</p>
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General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Energize, de-energize, clean, and inspect main switchboards
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify switchboard components • Recall the purpose of the EOSS/EOCC procedures • Identify switchboard TAG-OUT procedures • Recall shipboard 60-Hz distribution
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, 19 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • LCAC APU, NAVSEA S9311-A3-A3-MMA-010 • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about switchboard components, operation, control and monitoring capabilities, safety features, isolation and tag-out procedures, ground detection, local operation and interfaces within the 60-Hz distribution system from the generator to the EPCC.</p>
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General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect , troubleshoot and repair bus transfer switches
<i>Knowledge</i> you should have to perform this skill:	<p>Describe:</p> <ul style="list-style-type: none"> • Theory of operation of automatic and manual bus ties and transfers of power between normal and alternate sources • Purpose of ABTs and MBTs • EOSS procedures • Test procedures • Normal/casualty modes of operation
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, 19 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • LCAC APU, NAVSEA S9311-A3-A3-MMA-010 • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:	You can expect questions about 60-Hz distribution, manual/automatic bus transfer, load centers, normal and casualty modes of operation.
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General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, troubleshoot, repair and replace electric motors and motor controllers
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Theory of operation • EOSS procedures • Test procedures • Normal/casualty modes of operation
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, 19 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1, 2, 3 and 4 • LCAC APU, NAVSEA S9311-A3-A3-MMA-010 • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about electric motor and motor controller components, theory of operation, maintenance, troubleshooting, and repair procedures.</p>
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General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect , troubleshoot and repair battery back-up power supply systems
<i>Knowledge</i> you should have to perform this skill:	Recall: <ul style="list-style-type: none"> • Electrical theory • EOSS procedures • Test/troubleshoot and repair procedures • Normal/casualty modes of operation
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, 19 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • LCAC APU, NAVSEA S9311-A3-A3-MMA-010 • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:	You can expect questions about batteries, battery maintenance, uninterruptible power supplies (UPS), power conversion equipment, and normal and casualty modes of operation.
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, troubleshoot and repair electrical/electronic components and control devices
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Operating characteristics of diodes, SCRs, switches (magnetic reed, contact closure, pressure, and temperature), relays, solenoids, power supplies, amplifiers, logic gates, and so forth • Fundamentals of electrical theory, component operation, and electrical/electronic symbology • Test, inspection, troubleshooting, and maintenance procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 2, 3, 7, 8, 13, 16, 19 • NSTM, Chapter 300 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subjects you should know to help you answer exam questions correctly:	You can expect questions about the electrical/electronic components used in controllers, consoles, and electrical equipment onboard navy ships and clean, inspect, troubleshoot and repair maintenance procedures associated with the equipment.

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General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, test, troubleshoot, and repair air compressors and compressor components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Operation precautions and procedures • Monitor parameters • Compressor components • Malfunctioning components • Abnormal conditions and the corrective action required • Compressor repair principles
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 551 • Propulsion Plant Manuals for AOE-6, CG-47, FFG-7, DD-963, and DDG-51 class ships; Volume 3 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • EOSS procedures • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about air compressor component identification and replacement, compressor operation, trouble detection/isolation, and repair.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, and replace bleed air system components, and operate bleed air systems from control consoles
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recognize bleed air system configurations for ship operations • Identify system parameters • Identify bleed air system components • Recognize malfunctions in system components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • NSTM, Chapter 551 • Propulsion Plant Manuals for AOE-6, CG-47, FFG-7, DD-963, and DDG-51 class ships; Volume 1 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the ship's bleed air systems with regard to alignments for prairie/masker, anti-icing, and start air. You also can expect questions on bleed air system parameters and components, troubleshooting, repair and replacement procedures.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
<i>A skill</i> you are expected to perform from the General Skill Area above:	Operate and maintain auxiliary/waste heat boilers/waste heat recovery systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify auxiliary boiler components • Identify waste heat boiler components • Identify waste heat recovery system components • Recall precautions and instructions when replacing components • Recall principles of operation of auxiliary boilers • Recall principles of operation of waste heat boilers • Recall principles of operation of waste heat recovery system • Recall boiler cleaning and inspection requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 221 • NSTM, Chapter 220, Volumes 1 and 2 • Propulsion Plant Manuals for AOE-6, CG-47, FFG-7, and DD-963 class ships; Volume 3 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the operation and maintenance of auxiliary and waste heat boilers and waste heat recovery systems, the requirements for cleaning and inspection of boilers, component identification, and waste heat/auxiliary boiler system casualties and the corrective actions required</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
<i>A skill</i> you are expected to perform from the General Skill Area above:	Operate waste oil systems
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Oily waste system operations • Environmental hazards of oily waste systems • Operation principles of oil/water separators and waste oil systems • Oily waste spill kit components • Oily waste spill containment procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • Propulsion Plant Manuals for AOE-6, CG-47, FFG-7, DD-963, and DDG-51 class ships; Volume 3 • Environmental and Natural Resources Program Manual, OPNAVINST 5090.1 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the operation and maintenance of the oily waste system, oil/water separators, and environmental restrictions/hazards.

Advancement Handbook for GSE3

General GSE~ <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, repair, and replace pumps and pump components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify pump components • Identify and classify pump types • Understand pump repair principles • Identify pump abnormalities and required corrective actions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 503 • Fireman, NAVEDTRA 12001 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about pump classification, component identification, and pump and component repair and replacement principles.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
<i>A skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, repair and maintain valves and mechanical valve actuators/operators
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Valves and valve types • Classification of valves • System requirements for valves • Maintenance requirements of valves
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 505 • Fireman, NAVEDTRA 12001 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about valve classification and identification, system requirements, and valve repair procedures and requirements.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, and adjust temperature detectors and regulators
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify temperature regulators and detection devices • Recall how to adjust temperature regulators • Recall how to repair temperature regulators
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 504 • Fireman, NAVEDTRA 12001 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about temperature regulator/detector identification, testing, and repair.

Advancement Handbook for GSE

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, repair, and maintain piping systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify discrepancies in piping and flexible hoses • Recall how to repair piping and flexible hoses • Identify discrepancies in piping system components, such as supports and sound isolation mounts • Recall how to inspect flange shielding and repair as necessary
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 505 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about piping system component inspection and repair to include pipes, flange shielding, flexible hoses, RISIC couplings, and supports/hangers, and piping identification and classification.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
<i>A skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, repair and replace hydraulic system components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall principles of operation of hydraulic systems • Identify hydraulic system components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 556 • Fluid Power, NAVEDTRA 12964 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about hydraulic system operating principles and component identification.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, replace, and calibrate gauges
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify and classify gauges • Recall how to verify calibration of gauges • Identify precautions to be observed during gauge replacement
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 504 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about gauge classification, calibration, and replacement procedures.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, and repair cooling water systems and heat exchangers/coolers
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify cooling water system components • Classify heat exchangers/coolers • Recall repair procedures for heat exchangers/coolers • Recall procedures for water system trouble identification, isolation, and correction
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 254 • Propulsion Plant Manuals for AOE-6, CG-47, FFG-7, DD-963, and DDG-51 class ships; Volume 3 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about components, maintenance, troubleshooting, and repair of cooling water systems. You also can expect questions on heat exchanger/cooler classification, maintenance, and repair.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, troubleshoot, replace and repair main drainage system components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Main drain system components • Main drain system capabilities • Main drain system malfunctions and corrective action
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 079, Volume 2, Section 30 • Propulsion Plant Manuals for AOE-6, CG-47, FFG-7, DD-963, and DDG-51 class ships; Volume 3 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about main drain system operation, component identification, and system capabilities and maintenance.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate, clean, inspect, test, troubleshoot, adjust, and repair CRP/CPP system and components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • CRP/CPP/LCAC propeller control system component • CRP/CPP/LCAC propeller control system operation • CRP/CPP/LCAC propeller control system pitch calibration procedures • CRP/CPP/LCAC propeller control system maintenance procedures • CRP/CPP/LCAC propeller control system trouble isolation and corrective action
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Operation and Maintenance Manual for LCAC Propulsion System (S9200-A6-MMA-010, Chapter 5) • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about CRP/CP/LCAC propeller control system components, operation, calibration, maintenance, troubleshooting, and repair procedures.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
<i>A skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, test, and troubleshoot stern tube, bulkhead, shaft seals, and line shaft bearings
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify stern tube, bulkhead, and shaft seal components • Identify abnormal conditions and corrective action required • Classify line shaft bearings • Identify line shaft bearing abnormal conditions and the corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapters 243 and 244 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the stern tube, bulkhead, and shaft seal components; abnormal conditions; and corrective actions required.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
<i>A skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, test, troubleshoot, and maintain lube oil service system
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Critical lube oil system parameters • Abnormal conditions in the lube oil service system and the corrective action required • Components of the lube oil service system • Security and cleanliness requirements when replacing lube oil system components • Precautions to be observed when engaging and disengaging attached pumps • Calibration procedures for lube oil pump logic
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 262 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Lube Oil Service System Pump Logic Calibration Procedures • Ships' 3-M Manual OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about lube oil service system operation, component identification, lube oil pump logic, system troubleshooting, component replacement, system maintenance, and attached pump operation.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, test, troubleshoot, and maintain lube oil fill/transfer system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify lube oil fill/transfer system components • Recall how to classify lube oil purifiers • Identify lube oil sampling and testing requirements and clean oil criteria • Identify abnormal conditions in the lube oil fill/transfer system and the corrective action required • Identify lube oil fill/transfer system operating parameters
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 262 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Navy Occupation Safety and Health (NAVOSH) Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about lube oil fill/transfer system components, lube oil purifiers and heaters, operating parameters, oil sampling and testing, and precautions to be observed during system operation.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, and test main reduction gear (MGR) and clutch/brake assembly components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify MRG components • Identify clutch/brake assembly components • Test MRG and clutch/brake assembly components • Identify MRG operational requirements • Identify right angle drive gear box components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 241 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Description and Maintenance Manual for LCAC Transmission System (NAVSEA S9240-AA-MMA-010) • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about MGR and clutch/brake assembly components, testing, and operation and LCAC transmission system operation, components, and testing.

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General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Rotate shafts with jacking/turning gears
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Jacking gear/turning gear components • Jacking gear/turning gear operating requirements • Jacking gear safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 241 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about jacking gear/turning gear component identification, operation, maintenance, troubleshooting, and safety precautions.

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General GSE <i>Skill Area</i>	Main Propulsion
<i>A skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, test, troubleshoot, and maintain prairie, masker, and start air systems
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Prairie, masker, and start air system components • Prairie, masker, and start air system abnormal conditions and the corrective actions required • Component replacement safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 551 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identification of prairie, masker, and start air system components, abnormal conditions and the corrective actions required, as well as repair and maintenance related safety precautions.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, test, troubleshoot, and maintain fuel oil service system
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Fuel oil service system components • Abnormal conditions in the fuel oil service system and the corrective action required • Fuel oil service system operating parameters • Fuel oil pump logic parameters
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapters 541 and 542 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Operation and Maintenance Manual for LCAC Craft Information Book, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010) • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the fuel oil service system components, fuel oil service system operating/fuel oil pump logic parameters, abnormal conditions in the fuel oil service system, and the corrective action required.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, operate, test, and troubleshoot fuel and fuel oil fill/transfer systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify fuel oil fill/transfer system components • Identify fuel oil fill/transfer system operating requirements • Identify abnormal conditions in the fuel oil fill/transfer system and the corrective action required • Identify fuel oil testing requirements and clean fuel criteria • Recall how to maintain fuel testing logs
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapters 541 and 542 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Operation and Maintenance Manual for LCAC Craft Information Book, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010) • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about fuel oil fill/transfer system operation, testing, components, maintenance, fuel oil purifiers and heaters, fuel oil sampling and testing requirements, and clean fuel criteria.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Clean, inspect, measure, cut, and fit lagging pads/flange shields
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify types, purposes, and repair procedures of insulating materials
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 635 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about piping system lagging and insulation methods, materials and repair and replacement criteria.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test, troubleshoot and repair Propulsion Control Consoles (PCC/PACC)
<i>Knowledge</i> you should have to perform this skill:	<p>Recall:</p> <ul style="list-style-type: none"> • GTE theory • System interfaces • Console component identification • Calibration procedures • EOSS procedures • Engineering control and surveillance system (ECSS) on DD-963, DDG-993, and CG-47 class ships • Engineering plant control system (EPCS) on FFG-7 class ships • Machinery control system (MCS) on DDG-51 class ships • Alarm and monitoring system on LCAC crafts • Propulsion support equipment alignment procedures and system operating requirements • Safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • SEAOPS Manual for LCAC (S9LCA-AA-

	SSM-010) <ul style="list-style-type: none"> • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE theory, console interfaces, calibration procedures, component identification, console alignment procedures, hot and cold check procedures, prior to getting underway procedures, console operations (starting, stopping, shifting of GTEs and support system equipment), EOSS/EOP EOCC procedures for all gas turbine platforms (ECSS, EPCS, MCS, and LCAC AMS).</p>

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test, troubleshoot and repair propulsion local control consoles (PLCC, LOP)
<i>Knowledge</i> you should have to perform this skill:	<p>Recall:</p> <ul style="list-style-type: none"> • GTE theory • System interfaces • Component identification • Calibration procedures • EOSS procedures • Engineering plant control system (EPCS) on FFG-7 class ships • Machinery control system (MCS) on DDG-51 class ships • Alarm and monitoring system on LCAC crafts • Propulsion support equipment alignment procedures and system operating requirements • Safety precautions

<p><i>References you should study to gain the knowledge you need to perform this skill:</i></p>	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE theory, console interfaces, calibration procedures, component identification, console alignment procedures, hot and cold check procedures, prior to getting underway procedures, console operations (starting, stopping, shifting of GTEs and support system equipment), EOSS/EOP EOCC procedures for all gas turbine platforms (ECSS, EPCS, MCS, and LCAC AMS).</p>

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
<i>A skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test, electric plant control console (EPCC, EPCE)
<i>Knowledge</i> you should have to perform this skill:	<p>Recall:</p> <ul style="list-style-type: none"> • Electrical theory • System interfaces • Component identification • Engineering plant control system (EPCS) on FFG-7 class ships • Machinery control system (MCS) on DDG-51 class ships • Alarm and monitoring system on LCAC crafts • EOSS procedures • Safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • NSTM, Chapters 300 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • SEAOPS Manual of LCAC (S9LCA-AA-SSM-010) • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010 • NAVOSH Program Manual, OPNAVINST 5100.19 • Ships' 3-M Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563

	<ul style="list-style-type: none"> • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GTE theory, console interfaces, calibration procedures, component identification, console alignment procedures, hot and cold check procedures, prior to getting underway procedures, console operations (starting, stopping, shifting of GTEs and support system equipment), EOSS/EOP EOCC procedures for all gas turbine platforms (ECSS, EPCS, MCS, and LCAC AMS.).</p>

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test ships control console (SCC)/command and control keyboard (LCAC's)
<i>Knowledge</i> you should have to perform this skill:	<p>Recall:</p> <ul style="list-style-type: none"> • Control path from the main engines to the SCC • Procedures for starting, stopping , and transfer of control between control locations • Components of the SCC • Console alignment procedures • SCC interfaces with the engineering control and surveillance system (ECSS) on DD-963, DD-993, CG-47 class ships • SCC interfaces with the engineering plant control system (EPCS) on FFG-7 class ships • Interfaces with the machinery control system (MCS) on DDG-51 class ships • Alarm and monitoring system on LCAC crafts
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • LCAC Alarm and Monitoring System (AMS), Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010

	<ul style="list-style-type: none"> • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about console interfaces, calibration procedures, console alignment procedures, component identification, prior to getting underway procedures, console operations (starting, stopping, shifting control location of GTEs) and interfaces with ECSS, EPCS, MCS, and LCAC AMS.</p>

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
<i>A skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test, auxiliary control console (ACC)
<i>Knowledge</i> you should have to perform this skill:	<p>Recall:</p> <ul style="list-style-type: none"> • Console interfaces • Console component identification • Console calibration procedures • Engineering plant control system (EPCS) on FFG-7 class ships • Auxiliary support equipment alignment procedures and system operating requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • Propulsion Plant Manuals for FFG-7 class ships; Volumes 1 and 2 • NAVOSH Program Manual, OPNAVINST 5100.19 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about console maintenance procedures, normal operation, fault isolation/troubleshooting and repair procedures, console interfaces with auxiliary support equipment to include control and monitoring capabilities from the console.</p>

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test fuel systems control consoles (FSCC)/fuel oil transfer and ballast panel (FOTBP)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify console interfaces • Identify console components • Identify calibration procedures • Recall the console within the context of the engineering control and surveillance system (ECSS) on DD-963, DD-993, CG-47 class ships • Recall the console within the context of the engineering plant control system (EPCS) on FFG-7 class ships • Recall the console within the context of the machinery control system (MCS) on DDG-51 class ships
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • Propulsion Plant Manuals for DD-963, DDG-993, CG-47, DDG-51, FFG-7 class ships; Volumes 1 and 2 • NAVOSH Program Manual, OPNAVINST 5100.19 • NSTM, Chapter 541 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about console maintenance procedures, normal operation, fault isolation/troubleshooting and repair procedures, console interfaces with the fuel oil fill and transfer system, the JP-5 local control panel, and support equipment to include control and monitoring capabilities from the console.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test, damage, control consoles/repair station consoles (DCC/RSC)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the operation of the DCC/RSC • Recall the console interfaces • Identify components of console construction • Identify console calibration procedures • Identify EOSS console alignment procedures • Recall the engineering plant control system (EPCS) on FFG-7 class ships • Recall the machinery control system (MCS) on DDG-51 and AOE-6 class ships • Recall the alarm and monitoring system (AMS) on LCAC crafts • Identify DCC/RSC interfaces and auxiliary support equipment alignment procedures and system operating requirements • Identify control and monitoring functions from the console • Recall safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS Modules 1, 2, 3, 4, 6, 7, 8, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24 • SEAOPS Manual for LCAC (S9LCA-AA-SSM-010) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • NAVOSH Program Manual, OPNAVINST 5100.19 • EOSS procedures

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the console interfaces, component identification, calibration procedures, alignment (EOSS/EOP EOCC) procedures, support equipment alignment procedures and system operating requirements, normal operation, fault isolation/troubleshooting and repair procedures, and safety precautions.</p>
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Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Record dry bulb temperature readings
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Proper location of dry-bulb thermometers • Heat stress program requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Engineering Department Organization and Readiness Manual, Chapter 5 • NAVOSH Program Manual, OPNAVINST 5100.19, Section B2 • Shipboard Heat Stress Control and Personnel Protection
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the shipboard heat stress program requirements, restrictions, and precautions.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Review and inspect hazardous material program requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify hazardous materials • Recognize hazardous material identification markings • Recall the storage requirements and limitations of hazardous material • Identify material safety data sheets • Identify oil spill kit components and usage procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 593 • NAVOSH Program Manual, OPNAVINST 5100.19, Section B3 • Hazardous Material Control and Management Program
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the hazardous material program with respect to material storage, disposal, spill cleanup, and use and handling precautions as directed by MSDS sheets and the Hazardous Material Instruction.

Advancement Handbook for GSE3

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Record meter readings
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Critical readings required in the engineering plant • Log-keeping requirements and procedures for recording readings • Instructions for preparing fuel and water report • How to properly complete the fuel and water report
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Engineering Department Readiness and Organization Manual, Chapter 5 • NSTM, Chapter 090 • NSTM, Chapter 220, Volume 2 • NSTM, Chapter 541
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the requirements and procedures of record keeping and about the preparation and retention of the fuel and water report.

Part 2

Advancement Handbook for GSE2

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate gas turbine (GT) engines remotely
<i>Knowledge</i> you should have to perform this skill:	<p>Recall GT engine starting and stopping procedures to include the following:</p> <ul style="list-style-type: none"> • EOSS procedures • Parameters • Starting sequence • Stopping sequence • Types of starts • Types of stops • Recognize casualties during starting or stopping
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapter 3 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 4 • Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010) • NSTM, Chapter 234
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the preparation of the engines for starting, the starting procedures, cautions, and parameters to be observed during the start/stop procedures, and casualty control actions

	required during the procedures.
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Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate GT generators remotely
<i>Knowledge</i> you should have to perform this skill:	<p>Recall GT generator starting and stopping procedures to include the following:</p> <ul style="list-style-type: none"> • EOSS procedures • Parameters • Starting sequence • Stopping sequence • Types of starts • Types of stops • Recognize casualties during starting or stopping • Identify GT engine theory principles and laws
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapter 3) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapter 3) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapter 2) • Operation and Maintenance Manual for LCAC Auxiliary Power Unit (APU) System/Installation (S9311-A3-MMA-010, Chapter 3) • Propulsion Plant Manuals for DD-963, CG-

	47, and DDG-51 class ships; Volume 2 <ul style="list-style-type: none"> • NSTM, Chapter 234
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the preparation of engines for operation, starting procedures, cautions, and parameters to be observed during the start/stop procedures, and casualty control actions required during the procedures.</p>

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot, repair and replace GT generator assembly components
<i>Knowledge</i> you should have to perform this skill:	<p>Identify:</p> <ul style="list-style-type: none"> • Troubleshooting procedures for GT generator assembly components • Maintenance requirements for removal and replacement of GT generator assembly components • Safety precautions to be observed during GT generator assembly component removal and installation • Documentation to be completed in the Marine Gas Turbine Logbook for GT generator assembly component removal and installation • Procedures used during borescope inspection of a GTE
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 234 • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapter 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapter 8) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapter 8) • Operation and Maintenance Manual for LCAC APU System/Installation (S9311-A3-

	MMA-010, Chapter 6)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about GT generator assembly component removal and installation procedures, precautions, and documentation.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Test, troubleshoot, and replace power turbine components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Power turbine components • Power turbine brake electrical components • Component cleaning practices • Component testing procedures • Component replacement precautions • Component repair concepts • Abnormal conditions and corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • NSTM, Chapters 234 and 241
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the component identification, operation principles, repair procedures, and troubleshooting of power turbines and power turbine brake assemblies.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot and replace GT inlet and exhaust system
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> • Identify GT inlet and exhaust system components • Test, repair, and replacement principles of operation of GT inlet and exhaust temperature, pressure, flame detection sensors, and transducers • Identify abnormal conditions and the corrective action required
References you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6 and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Operation and Maintenance Manual for LCAC Main Propulsion Engine (Model TF40B) (S9234-ES-MMA-010) • NSTM, Chapter 234 • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapters 2, 5, 6, and 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapters 2, 5, 6, and 8) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130)

	<p>GTGS, Chapters 3-6, and 8)</p> <ul style="list-style-type: none"> • Operation and Maintenance Manual for LCAC APU System/Installation (S9311-A3-MMA-010, Chapters 2-6)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the operation, inspection, troubleshooting, repair and replacement criteria, and procedures of GT engine inlet air and exhaust system components.</p>

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Gas Turbine
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot major components of the propulsion GT modules
<i>Knowledge</i> you should have to perform this skill:	<p>Identify:</p> <ul style="list-style-type: none"> • Four major equipment units of the GT module to include the base/enclosure assembly, GT assembly, lube oil storage and conditioning assembly, and the free standing electronic enclosure (FSEE)/integrated electronic control assembly (IEC) • Major units of equipment of the ships service diesel generator set to include the diesel engine, the ac generator, the common base with associated equipment, control, and monitoring devices • Inspection criteria for GT modules • Inspection criteria for SSDG enclosures • Testing procedures for Halon systems • Temperature/alarm calibration procedures • Transducer calibration procedures • FSEE/IEC check calibration procedures • Lock wire procedure • GT engine support system interfaces to include wiring harnesses and cable runs • SSDG support system interfaces to include wiring harnesses and cable runs
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS module inspection procedure • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-

	<p>963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2</p> <ul style="list-style-type: none"> • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapters 2, 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapters 2, 8) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapters 2, 6) • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about GT engine module/GTGS/SSDG enclosure testing, inspection, and repairs, Halon system testing, support system interfaces and calibration procedures for module/enclosure mounted sensors and transducers, as well as FSEE checks for the DD-963, DD-993, FFG-7, and CG-47 class ships and IEC checks for the DDG-51 and AOE 6 class ships.</p>

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Auxiliary Equipment
<i>A skill</i> you are expected to perform from the General Skill Area above:	Test, troubleshoot, repair and replace main switchboard and associated components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Switchboard sections and components • Relays and safety devices, their uses, and the equipment protected • Abnormal conditions and the corrective action required • Switchboard/switchboard component replacement, precautions, and procedures • Voltage regulators– repair and replacement procedures • Shore power phase sequence checks and procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Navy Electricity and Electronics Training Series (NEETS), Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, and 19 • NSTM, Chapters 300, 302 and 320 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2 • Safe Engineering and Operations (SEAOPS) Manual for LCAC (S9LCA-AA-SSM-010) • Maintenance Manual for LCAC APU System/Installation (S9311-A3-MMA-010, Chapter 6) • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC Craft Information Book (CIB), NAVSEA S9LCA-AA-SIB-010 • Navy Occupational Safety and Health

	<p>(NAVOSH) Program Manual, OPNAVINST 5100.19</p> <ul style="list-style-type: none"> • Ships' Maintenance Material Management (3-M) Manual, OPNAVINST 4790.4 • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564 • EOSS procedures
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about switchboard component troubleshooting, repair and replacement procedures as well as electrical safety, tag-out, authority required and procedural steps in isolating and repairing a main switchboard and the checking of the phase relationship between ship and shore power.</p>

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Auxiliary Equipment
<i>A skill</i> you are expected to perform from the General Skill Area above:	Replace waste heat boiler (WHB) system components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify auxiliary boiler components • Identify WHB components • Identify waste heat recovery system components • Recall precautions and instructions when replacing components • Recall how to operate auxiliary boilers • Recall how to operate waste heat boilers • Recall how to operate waste heat recovery systems • Recall boiler cleaning and inspection requirements • Identify WHB operating parameters • Identify abnormal conditions and the corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 220, Volumes 1 and 2 • NSTM, Chapter 221 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, and AOE-6 class ships; Volume 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the operation and maintenance of auxiliary and waste heat boilers and waste heat recovery systems, the requirements for cleaning and inspection of boilers, component identification, and waste heat/auxiliary boiler system casualties and the corrective actions required.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform pre-operational checks, align, test, calibrate, troubleshoot, repair and replace electrical/electronic enclosures and controllers
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify abnormal conditions in electrical/electronic enclosure/controllers and the corrective action required • Identify various uses for electrical/electronic enclosure/controllers (i.e., valve controllers, auxiliary equipment controllers, alarm and indicating panels, etc.) • Identify and recall how to troubleshoot, repair, and replace common electrical/electronic components used in automatic control devices • Identify and recall troubleshooting, repairing, and replacing procedures for micro-switches, level switches, relays, solenoids, converters and inverters, transformers, and temperature, pressure, and level control devices • Recognize malfunctions in automatic electronic control devices
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS, Modules 1, 2, 3, 4, 6, 7, 8, 13, 16, 19, and 22 • NSTM, Chapter 300 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1, 2, 3, and 4 • LCAC Alarm and Monitoring System, Volume 1, NAVSEA SE168-AM-MMF-010 • LCAC CIB, NAVSEA S9LCA-AA-SIB-010

	<ul style="list-style-type: none"> • GSE3/GSM3, Volume 1, NAVEDTRA 10563 • GSE3/GSM3, Volume 2, NAVEDTRA 10564
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about ships' various electrical/electronic enclosure/controllers; valve controllers; auxiliary equipment controllers; alarm and indicating panels; micro-switches; level switches; relays; solenoids; converters and inverters; transformers; and temperature, pressure, and level control devices.</p>

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Test, troubleshoot, repair and replace air compressor components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Operation precautions and procedures • Parameters to be monitored • Compressor components • Malfunctioning components • Abnormal conditions and the corrective action required • Compressor repair principles
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • NSTM, Chapter 551 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about air compressor component identification and replacement, compressor operation, trouble detection/isolation, and repair.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot, repair and replace bleed air, prairie air, masker air and start air system components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Operation precautions and procedures • Parameters to be monitored • System components • Malfunctioning components • Abnormal conditions and the corrective action required • System repair principles
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • EOSS procedures • NSTM, Chapter 551 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about bleed air, prairie, masker, and start air system component identification and replacement, operation, trouble detection/isolation, and repair.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Auxiliary Equipment
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot seawater service (SWS) system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify valve types used in SWS and auxiliary equipment seawater cooling • Identify procedures for calibration, repair, and replacement procedures for automatic control valves • Identify discrepancies in piping and flexible hoses • Identify discrepancies in piping system components, such as supports and sound isolation mounts • Identify flange shielding inspection and replacement criteria • Classify rigid tubing • Identify replacement procedures and precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS, Modules 1, 2, 3, 4, 5, 7, 8, 13, 16, and 19 • NSTM, Chapters 300, 302, 320 and 505 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about piping system component inspection and repair to include pipes, valves, valve controllers, flange shielding, flexible hoses, RISIC couplings, and supports/hangers, piping identification and classification, and rigid tubing classification and replacement.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Main Propulsion
<i>A skill</i> you are expected to perform from the General Skill Area above:	Repair and replace shafting components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify shafting components to include torsion meters, flow meters, temp sensors, stern tube seals, bulkhead seals, and line shaft bearings • Identify stern tube, bulkhead, and shaft seal components • Classify line shaft bearings • Identify line shaft bearing abnormal conditions and the corrective action required • Identify maintenance requirements for shafting components • Identify procedures and precautions to be observed while replacing/repairing shafting components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapters 243 and 244 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about main propulsion shafting components (torsion meters, flow meters, temp sensors, stern tube seals, shaft seals, bulkhead seals, line shaft bearings, shaft construction), identification, propulsion shafting characteristics, maintenance, repair/replacement procedures and precautions, and trouble isolation.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot, repair, and replace main reduction gear (MRG) and clutch/brake components and assemblies
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • MRG and clutch/brake assembly components • Component repair/replacement procedures and precautions • Abnormal conditions and corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 241 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the MRG and clutch/brake assemblies with regard to recognizing abnormal conditions, corrective action, component identification, repair and replacement procedures, and precautions to be observed.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot fuel oil system components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Fuel oil service system components • Fuel oil service system operating parameters • Abnormal conditions in fuel systems and the corrective actions required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapters 541 and 542 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Operation and Maintenance Manual for LCAC CIB, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about fuel oil system operation, testing, maintenance, component identification, troubleshooting, and corrective actions.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Main Propulsion
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot lube oil system components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Lube oil service system components • Lube oil service system operating parameters • Abnormal conditions in lube oil systems and the corrective actions required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 262 • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volume 1 • Operation and Maintenance Manual for LCAC CIB, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about lube oil system operation, testing, maintenance, component identification, troubleshooting, and corrective actions.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Propulsion Control Systems
<i>A skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot propulsion control consoles (PCC) and the propulsion and auxiliary control consoles (PACC)
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • EOSS pre-operational check procedures • Console alignment procedures • Propulsion support equipment alignment procedures and system operating requirements • Start air system alignment and operating procedures • Abnormal/out-of-parameter conditions and the corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapter 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • NSTM, Chapter 234 • Operation and Maintenance Manual for LCAC CIB, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about console maintenance procedures, normal operation, fault isolation/troubleshooting procedures EOSS, EOP, and EOCC.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Propulsion Control System
<i>A skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot and adjust propulsion local control consoles (PLCC)
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • EOSS pre-operational check procedures • Console alignment procedures • Propulsion support equipment alignment procedures and system operating requirements • Start air system alignment and operating procedures • Abnormal/out-of-parameter conditions and the corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1-3, 6, and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • NSTM, Chapter 234 • Operation and Maintenance Manual for LCAC CIB, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about console maintenance procedures, normal operation, fault isolation/troubleshooting procedures EOSS, EOP, and EOCC.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot, adjust and replace electric plant control console (EPCC), electric plant control equipment (EPCE) components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • EOSS pre-operational check procedures • Console alignment procedures • GTGS support equipment alignment procedures and system operating requirements • Start air system alignment and operating procedures • Abnormal/out-of-parameter conditions and the corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • NSTM, Chapter 234 • Description, Operation, and Installation Technical Manual for Model 104 GTGS (S9234-BC-MMO-010-050/MOD 104 GTGS, Chapters 2, 8) • Description, Operation, and Installation Technical Manual for Model 139 GTGS (S9234-B3-MMO-010-040/MOD 139 GTGS, Chapters 2, 8) • Description, Operation, and Installation Technical Manual for Model AG9130 GTGS (S9311-AQ-MMO-010-060/MOD AG9130 GTGS, Chapters 2, 6) • Operation and Maintenance Manual for LCAC CIB, Section II, Part 1, Chapter 7 (NAVSEA S9LCA-AA-SIB-010)

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about console maintenance procedures, normal operation, fault isolation/troubleshooting procedures EOSS, EOP, and EOCC.</p>
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Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Propulsion Control Systems
<i>A skill</i> you are expected to perform from the General Skill Area above:	Operate, maintain, test ships control console (SCC)
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • EOSS pre-operational check procedures • Console alignment procedures • Propulsion support equipment system operating requirements • Procedures for the transfer of control between operating stations • Abnormal/out-of-parameter conditions and the corrective action required
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapters 1, 2, 3, 6 and 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • NSTM, Chapter 234 • Operation and Maintenance Manual for LCAC CIB (NAVSEA S9LCA-AA-SIB-010)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about console maintenance procedures, normal operation, fault isolation/troubleshooting procedures EOSS, EOP, and EOCC.

Advancement Handbook for GSE2

General GSE <i>Skill Area</i>	Propulsion Control Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot, repair and replace fuel systems control consoles (FSCC) components
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Console alignment procedures • Abnormal/out-of-parameter conditions and the corrective action required • Fuel oil fill/transfer system components • Fuel oil fill/transfer system operating requirements • Abnormal conditions in the fuel oil fill/transfer system and the corrective action required • Fuel oil testing requirements and clean fuel criteria • Proper maintenance of fuel testing logs
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation; Chapter 8 (S9234-AD-MMO-010-090/LM2500) • Propulsion Plant Manuals for FFG-7, DD-963, CG-47, DDG-51, and AOE-6 class ships; Volumes 1 and 2 • NSTM, Chapters 541 and 542
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about fuel oil fill/transfer system operation, testing, components, maintenance, fuel oil purifiers and heaters, fuel oil sampling and testing requirements, and clean fuel criteria.

Part 3

Advancement Handbook for GSE1

Advancement Handbook for GSE1

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare equipment calibration schedules
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify documentation required to support ship-to-shore maintenance • Identify documentation required to assist the calibration team • Identify the role of equipment calibration with respect to the material readiness of the engineering department • Recall tag-out procedures to ensure sound engineering practices during calibration team visit and continued safe operation of engineering equipment • Identify interfaces of engineering equipment and systems • Recall administrative procedures of the 3-M system • Identify significant areas of the Consolidated Ship's Maintenance Plan (CSMP)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Standard Organization and Regulations Manual (SORM), Chapters 6, 7, and 9, OPNAVINST 3120.32 • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURFLANT/PACINST 3540.22 • Ships' Maintenance and Material Management (3-M) Manual, Chapters 6 and 7, OPNAVINST 4790.4 • Gas Turbine Systems Supervisor, NAVEDTRA 82158

	<ul style="list-style-type: none"> • Engineering Administration, NAVEDTRA 82147
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the tag-out bill, calibration program, 3-M system administrative procedures, documentation requirements, levels of maintenance, ship-to-shore maintenance actions, and CSMP upkeep.</p>

Advancement Handbook for GSE1

General GSE <i>Skill Area</i>	Technical Administration
<i>A skill</i> you are expected to perform from the General Skill Area above:	Review/file engineering logs, prepare daily fuel and water reports, update fuel logs
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Engineering log and engineer's bell book record storage requirements • Engineering equipment "operating records," trend analysis, purpose, and procedures • Procedures for determining fuel and water status onboard
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Standard Organization and Regulations Manual (SORM), Chapter 4, OPNAVINST 3120.32 • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 • NSTM, Chapter 090 • NSTM, Chapter 220, Volume 2 • NSTM, Chapter 541 • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the time requirements for maintaining engineering logs and records, purpose and procedures for trend analysis of equipment operating logs, daily fuel and water report, and the relationship between engineering administration and material readiness of the propulsion plant.

Advancement Handbook for GSE1

General GSE <i>Skill Area</i>	Technical Administration
<i>A skill</i> you are expected to perform from the General Skill Area above:	Review ship-to-shore maintenance progress reports; review engineering and equipment degradations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify documentation required to support ship-to-shore maintenance • Recall administrative procedures of the 3-M system • Identify significant areas of Consolidated Ship's Maintenance Plan (CSMP)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Standard Organization and Regulations Manual (SORM), Chapter 9, OPNAVINST 3120.32 • Engineering Department Organization and Regulations Manual (EDORM), Chapters 4 and 5, COMNAVSURLANT/PACINST 3540.22 • 3-M Manual, Chapters 6 and 7. OPNAVINST 4790.4 • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about engineering management programs, the 3-M system administrative procedures, levels of maintenance documentation requirements, ship-to-shore maintenance actions, material readiness, and CSMP upkeep.

Advancement Handbook for GSE1

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Update engineering operational sequencing system (EOSS) publications
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify discrepancies requiring feedback reports and the type of reports required • Identify criteria for EOSS validations • Familiarization with the EOSS User's Guide (EUG)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 • EOSS User's Guide (EUG) • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about EOSS maintenance, documentation, and updating procedures.

Advancement Handbook for GSE1

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Inventory and validate engineering bulletins and changes; review/update marine gas turbine service records (MGTSR)
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • MGTSR sections and maintenance requirements • Procedures for updating, opening, and closing MGTSR • Different gas turbine technical directives and the required action in the MGTSR
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 234 • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 • Marine Gas Turbine Technical Directives Manual, NAVSEA (T9234-AB-PRO-010) • General Gas Turbine Bulletin (GGTB Nr. 3) • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about MGTSR maintenance and updating procedures, upkeep requirements, and technical directive instructions.

Part 4

Advancement Handbook for GSEC

Advancement Handbook for GSEC

General GSE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Establish hazardous waste disposal methods
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify hazardous waste management instructions and control methods • Identify hazardous materials • Recognize hazardous material identification markings • Recall the storage requirements and limitations of hazardous material • Identify material safety data sheets • Identify oil spill kit components and usage procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 593 • Hazardous Material Control and Management Program, Section B3, OPNAVINST 5100.19
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the hazardous material program with respect to material storage, disposal, spill cleanup, and use and handling precautions as directed by MSDS sheets and management of the hazardous material program.

Advancement Handbook for GSEC

General GSE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor hearing conservation and heat stress programs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify hearing conservation program requirements and hazards • Identify heat stress program requirements and hazards • Maintain records of the heat stress program • Recognize heat stress program discrepancies and corrective actions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 • OPNAVINST 5100.19, Sections B2-B • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the requirements of the heat stress and hearing conservation programs, the maintenance of required records, and the correction of hazards related to the programs.

Advancement Handbook for GSEC

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Update marine gas turbine logbooks and service records
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Established policy and procedures for use of marine gas turbine equipment service records and logbooks • Gas turbine operating log record storage requirements • Operating log trend analysis, purpose, and procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 • NSTM, Chapters 090 and 234 • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the established policy and procedures for use of marine gas turbine equipment service records and logbooks, record keeping, and storage requirements.

Advancement Handbook for GSEC

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Update engineer's bell log
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> Identify engineering log and engineer's bell book record keeping requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> Standard Organization and Regulations Manual (SORM), Chapter 4, OPNAVINST 3120.32 Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 NSTM, Chapter 090 Gas Turbine Systems Supervisor, NAVEDTRA 82158 Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the specified requirements and guidance for required entries, time requirements, and legal issues involved in the possession and maintenance of the engineer's bell book.

Advancement Handbook for GSEC

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Review engineering and equipment degradations
<i>Knowledge</i> you should have to perform this skill:	Identify: <ul style="list-style-type: none"> • Engineering department operations • Engineering management programs • Material condition of the engineering plant • Levels of maintenance • Material readiness of the ship with respect to the current ships maintenance project (CSMP)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Standard Organization and Regulations Manual (SORM), Chapter 4, OPNAVINST 3120.32 • Engineering Department Organization and Regulations Manual (EDORM), Chapter 5, COMNAVSURLANT/PACINST 3540.22 • Ships' Maintenance and Material Management (3-M) Manual, Chapters 6 and 7, OPNAVINST 4790.4 • NSTM, Chapter 090 • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about engineering department operations, management programs, the material condition of the engineering plant, the different levels of maintenance actions and the material

	readiness/degradation of the ship with respect to equipment degradation as reflected on the current ships maintenance project (CSMP).
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Advancement Handbook for GSEC

General GSE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare full power and economy trial reports
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify requirements for preparing and submitting full power and economy trial reports
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NSTM, Chapter 090 • Gas Turbine Systems Supervisor, NAVEDTRA 82158 • Engineering Administration, NAVEDTRA 82147
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the preparation and submission of full power and economy trial reports.

Appendix 1

References Used in This Advancement Handbook

Rating	Short Title	Long Title	Chapters/ Paragraphs	Stocking Point
GSE3	NAVEDTRA B72-01-00-92	Navy Electricity and Electronics Training Series (NEETS), Module 1, Introduction to Matter, Energy, and Direct Current		4
	NAVEDTRA 172-02-00-91	NEETS, Module 2, Introduction to Alternating Current and Transformers		4
	NAVEDTRA B72-03-00-93	NEETS, Module 3, Circuit Protection, Control, and Measurement		4
	NAVEDTRA B72-04-00-92	NEETS, Module 4, Introduction to Electrical Conductors, Wiring Techniques, and Schematic Reading		4
	NAVEDTRA B72-05-00-94	NEETS, Module 5, Introduction to Generators and Motors		4
	NAVEDTRA B72-06-00-92	NEETS, Module 6, Introduction to Electronic Emission, Tubes, and Power Supplies		4
	NAVEDTRA B72-07-00-92	NEETS, Module 7, Introduction to Solid-State Devices and Power Supplies		4
	NAVEDTRA 172-08-00-82	NEETS, Module 8, Introduction to Amplifiers		4
	NAVEDTRA 172-12-00-83	NEETS, Module 12, Modulation Principles		4
	NAVEDTRA B72-13-00-94	NEETS, Module 13, Introduction to Number Systems and Logic Circuits		4
	NAVEDTRA 172-14-00-84	NEETS, Module 14, Introduction to Microelectronics		4
	NAVEDTRA B72-15-00-93	NEETS, Module 15, Principles of Synchros, Servos, and Gyros		4
	NAVEDTRA B72-16-00-96	NEETS, Module 16, Introduction to Test Equipment		4
	NAVEDTRA B72-19-00-92	NEETS, Module 19, The Technician's Handbook		4
	NAVEDTRA 172-20-00-85	NEETS, Module 20, Master Glossary and Index		4
	NAVEDTRA B72-21-00-87	NEETS, Module 21, Test Methods and Practices		4

	NAVEDTRA B72-22-00-88	NEETS, Module 22, Introduction to Digital Computers		4
	NAVEDTRA B72-23-00-91	NEETS, Module 23, Introduction to Magnetic Recording		4
	NAVEDTRA B72-24-00-92	NEETS, Module 24, Introduction to Fiber Optics		4
	NAVEDTRA 12001	Fireman		4
	NAVEDTRA 12964	Fluid Power		4
	NAVEDTRA 10563	Gas Turbine Systems Technician (Electrical) 3/Gas Turbine Systems Technician (Mechanical) 3, Volume 1		4
	NAVEDTRA 10564	Gas Turbine Systems Technician (Electrical) 3/Gas Turbine Systems Technician (Mechanical) 3, Volume 2		4
	COMNAVSURFLANT/PACI NST 3540.22	Engineering Department Organization and Regulations Manual	Chapter 5	3
	OPNAVINST 5100.19	Shipboard Heat Stress Control and Personnel Protection	Section B2	2
	OPNAVINST 5100.19	Hazardous Material Control and Management Program	Section B3	2
	OPNAVINST 4790.4	Ships' Maintenance Material Management (3- M) Manual		2
	S9234-AD-MMO-010- 090/LM2500	LM2500 Propulsion Gas Turbine Engine Module Description, Operation, and Installation	Chapters 1, 2, 3, 6, and 8	1
	S9234-AL-GTP-010-040 S9234-D8-GTP-010-040 S9234-BL-GTP-010-040 S9234-GA-GTP-010-040 S9234-DA-OMI-010-040	Propulsion Plant Manuals for DD-963, CG-47, FFG-7, DDG-51, and AOE-6 class ships	Volumes 1, 2, 3, and 4	1
	S9200-A6-MMA-010	Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Propulsion System	Chapter 5	1
	S9240-AA-MMA-010	Description and Maintenance Manual for Landing Craft Air Cushion (LCAC) Transmission System		1
	SE168-AM-MMF-010	Landing Craft Air Cushion (LCAC) Alarm and Monitor System (AMS)		1

	S9LCA-AA-SIB-010	Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Craft Information Book (CIB)	Section II, Part 1, Chapter 7	1
	S9200-A6-MMA-010	Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Propulsion System	Chapter 5	1
	S9240-AA-MMA-010	Description and Maintenance Manual for Landing Craft Air Cushion (LCAC) Transmission System		1
	S9311-A3-MMA-010	Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Auxiliary Power Unit (APU) System/Installation		1
	S9234-BC-MMO-010-050/MOD 104 GTGS	Description, Operation, and Installation Technical Manual for Model 104 GTGS	Chapters 2, 3, 5, 6, and 8	1
	S9234-B3-MMO-010-040/MOD 139 GTGS	Description, Operation, and Installation Technical Manual for Model 139 GTGS	Chapters 2, 3, 5, 6, and 8	1
	S9311-AQ-MMO-010-060/MOD AG9130 GTGS	Description, Operation, and Installation Technical Manual for Model AG9130 GTGS	Chapters 2, 6, and 8	1
	S9200-A6-MMA-010	Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Propulsion System	Chapter 5	1
	S9LCA-AA-SIB-010	Operation and Maintenance Manual for Landing Craft Air Cushion (LCAC) Craft Information Book (CIB)	Section II, Part 1, Chapter 7	1
	EUG	EOSS User's Guide		
	S9202-AV-MMF-010	FOMM, Support Volume for DDG-51 Machinery Control System, Volume 1		1
	S9202-AN-MMF-010	FOMM, Support Volume for DDG-51 Shaft Control Unit, Volume 1		1
	S9202-AU-MMF-010	FOMM, Support Volume for DDG-51 Propulsion and Auxiliary Control Console (PACC), Volume 1		1
	S9202-AT-MMF-010	FOMM, Support Volume for DDG-51 Electric Plant Control Console, Volume 1		1
	S9202-AP-MMF-010	FOMM, Support Volume for DDG-51 Damage Control Console, Volume 1	Chapters 2, 3, 5, 6, and 8	1

	S9202-AR-MMF-010	FOMM, Support Volume for DDG-51 EOOW/Logging Unit	Chapters 2, 3, 4, 5, 6, and 8	1
	S9202-AQ-MMF-010	FOMM, Support Volume for DDG-51 Repair Station Console, Volume 1		1
	S9202-AS-MMF-010	FOMM, Support Volume for DDG-51 Bridge Control Unit, Volume 1		1
	NSTM, Chapter 001	General - NSTM Publications Index and User Guide		1
	NSTM, Chapter 079	Damage Control-Practical Damage Control	Volume 2, Section 30	1
	NSTM, Chapter 090	Inspections, Tests, Records, and Reports		1
	NSTM, Chapter 220	Boiler Water/ Feedwater - Water Chemistry	Volume 1	1
	NSTM, Chapter 220	Boiler Water/ Feedwater - Test and Treatment	Volume 2	1
	NSTM, Chapter 221	Boilers		1
	NSTM, Chapter 233	Diesel Engines		1
	NSTM, Chapter 234	Marine Gas Turbine Engines		1
	NSTM, Chapter 241	Propulsion Reduction Gears, Couplings, Clutches, and Associated Components		1
	NSTM, Chapter 243	Propulsion Shafting		1
	NSTM, Chapter 244	Propulsion Bearings and Seals		1
	NSTM, Chapter 254	Condensers, Heat Exchangers, and Air Ejectors		1
	NSTM, Chapter 262	Lubricating Oils, Greases, Specialty Lubricants, and Lubrication Systems		1
	NSTM, Chapter 300	Electric Plant – General		1
	NSTM, Chapter 302	Electric Motors and Controllers		1
	NSTM, Chapter 310	Electric Power Generators and Conversion Equipment		1
	NSTM, Chapter 320	Electric Power Distribution Systems		1
	NSTM, Chapter 491	Electrical Measuring and Test Equipment		1
	NSTM, Chapter 503	Pumps		1
	NSTM, Chapter 504	Pressure, Temperature, and Other Mechanical and Electromechanical Measuring Instruments		1
	NSTM, Chapter 505	Piping Systems		1
	NSTM, Chapter 541	Ship Fuel and Fuel Systems		1
	NSTM, Chapter 542	Gasoline and JP-5 Fuel Systems		1

	NSTM, Chapter 551	Compressed Air Plants and Systems		1
	NSTM, Chapter 556	Hydraulic Equipment (Power Transmission and Control)		1
	NSTM, Chapter 593	Pollution Control		1
	NSTM, Chapter 635	Thermal, Fire, and Acoustic Insulation		1
GSE2	OPNAVINST 5090.1	Environmental and Natural Resources Program Manual		2
	S9234-D1-GTP-010/LM2500	Internal Inspection and Evaluation of Marine Gas Turbine Engines		1
	S9202-AT-MMF-020	FOMM, Troubleshooting/Repair Volume for DDG-51 Electric Plant Control Console, Volume 2		1
	S9202-AP-MMF-020	FOMM, Troubleshooting/Repair Volume for DDG-51 Damage Control Console, Volume 2	Chapters 2, 3, 5, 6, and 8	1
	S9202-AR-MMF-020	FOMM, Troubleshooting/Repair Volume for DDG-51 EOOW/Logging Unit	Chapters 2, 3, 4, 5 and 6	1
	S9202-AQ-MMF-020	FOMM Troubleshooting/Repair Volume for DDG-51 Repair Station Console, Volume 2		1
	S9202-AS-MMF-010	FOMM, Troubleshooting/Repair Volume for Bridge Control Unit, Volume 2		1
	S9202-AN-MMF-020	FOMM, Troubleshooting/Repair Volume for the DDG-51 Shaft Control		1
	S9202-AU-MMF-020	FOMM, Troubleshooting/Repair Volume for Propulsion and Auxiliary Control Console, Volume 2		1
GSE1	GGTB Nr. 3	General Gas Turbine Bulletin Nr. 3		5
	OPNAVINST 4790.4	Ships' Maintenance, Material Management (3-M) Manual	Chapters 6 and 7	2
	T9234-AB-PRO-010	Marine Gas Turbine Technical Directives Manual		1
GSEC		No additional references; all references are listed above		

LEGEND:

Note 1 – To order, MILSTRIP to Naval Inventory Control Point (NAVICP), Philadelphia, PA or via INTERNET <http://www.nll.navsup.navy.mil>

Note 2 – Available via INTERNET <http://www.nll.navsup.navy.mil>
or <http://neds.nebt.daps.mil/>

Note 3 – Fleet Publications Library CD-ROM

Note 4 – Catalog of Nonresident Training Courses, NAVEDTRA 12061

Note 5 – Available via INTERNET <http://www.navygasturbines.org>